We claim:

1. A magnetorheological device comprising:

a generally cylindrically shaped housing having cylindrical walls and a divider within said housing;

said housing includes an integral end portion and an end plate removably attached to said cylindrically shaped housing;

a rotary impeller having two paddles mounted within said housing;

said rotary impeller sealingly engaging said divider;

said paddles in combination with said cylindrical walls, said divider, said integral end portion of said housing, and said end plate of said housing form a first chamber and a second chamber;

a magnetorheological fluid residing in said chambers;

a passageway interconnecting said first and second chambers; and,

a coil surrounding a portion of said passageway enabling the viscosity of the magnetorheological fluid to be varied.

2. A magnetorheological device as claimed in claim 1 wherein said coil is a direct current coil.

3. A magnetorheological device as claimed in claim 1 wherein said coil is an alternating current coil.

4. A magnetorheological device as claimed in claim 2 further comprising a permanent magnet mounted in proximity to said passageway.

5. A magnetorheological device as claimed in claim 3 further comprising a permanent magnet mounted in proximity to said passageway.

6. A magnetorheological device as claimed in claim 1 wherein said passageway is exterior to said housing.

7. A magnetorheological device as claimed in claim 1 wherein said passageway is interior to said housing.

8. A magnetorheological device as claimed in claim 1 further comprising a first edge seal extending from said first paddle and a second edge seal extending from said second paddle.

9. A magnetorheological device as claimed in claim 1 wherein said housing includes a third inner seal affixed to said integral end portion and a fourth seal affixed to said end plate.

10. A magnetorheological device as claimed in claim 6 wherein said passageway includes a tortuous path.

11. A magnetorheological device as claimed in claim 1 further comprising a first edge seal extending from said first paddle, a second edge seal extending from said second paddle, a third inner seal affixed to said integral end portion and a fourth seal affixed to said end plate.

12. A torsional magnetorheological device comprising:

a housing having a divider extending inwardly from said housing;

a hub having a first impeller and a second impeller rotatably mounted within said

housing;

said first impeller and said second impeller straddling said divider;

a first chamber formed by said first impeller and said divider and a second chamber formed by said second impeller and said divider;

a passageway interconnecting said first and second chambers;

magnetorheological fluid in said chambers and said passageway; and,

a coil in proximity with said passageway for varying the viscosity of said magnetorheological fluid.

13. A torsional magnetorheological device as claimed in claim 12 further comprising a permanent magnet in proximity with said passageway.

14. A torsional magnetorheological device comprising:

a housing having a divider extending inwardly from said housing;

a hub having a first impeller and a second impeller rotatably mounted within said housing;

said first impeller and said second impeller straddling said divider;

a first chamber formed by said first impeller and said divider and a second chamber formed by said second impeller and said divider;

a passageway interconnecting said first and second chambers;

magnetorheological fluid in said chambers and said passageway; and,

said housing comprising an electromagnet.

15. A torsional magnetorheological device comprising:

a housing having a divider extending inwardly from said housing;

a hub having a first impeller and a second impeller rotatably mounted within said housing;

said first impeller and said second impeller straddling said divider;

a first chamber formed by said first impeller and said divider and a second chamber formed by said second impeller and said divider;

a passageway interconnecting said first and second chambers;

magnetorheological fluid in said chambers and said passageway;

a magnetic field generated by a coil in proximity to said passageway such that an increase in said field increases the viscosity of the magnetorheological fluid;

said magnetorheological fluid in said passageway being solidified upon application of a sufficient magnetic field thereto forming a plug in said passageway;

said hub and impellers rotatably pushing said magnetorheological fluid against said divider and said plug such that said magnetorheological fluid is in compression.